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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,453	02/28/2002	Lingju Cao	219425US0	4985

22850 7590 11/30/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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TRAN, THAO T

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/084,453

Applicant(s)

CAO ET AL.

Examiner

Thao T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 22-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 22-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. This is in response to the Amendment filed on 8/31/2005.
2. Claims 1 and 22-44 are currently pending in this application. In this amendment, claim 39 has been amended.
3. In view of the Office action of 6/01/2005, the rejection of claims 39-44 as being anticipated by Margolin et al. (US Pat. 6,359,118), has been withdrawn due to the Amendment made thereto.
4. Upon further consideration, the allowance of claims 1 and 22-38 has been withdrawn.
5. A new rejection is issued as follows.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 22-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margolin et al. (US Pat. 6,359,118).

Margolin teaches crosslinked enzyme (glycoprotein) aggregates (crystals) and a method of preparing (see abstract); the method comprising providing a plurality of enzyme molecules

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(glucose oxidase); aggregating the enzyme molecules by a precipitating agent (polyethylene glycol) (see col. 17, ln. 51-52; Example 2); crosslinking the aggregated enzyme molecules to one another with a crosslinking agent (see col. 9, ln. 1-10).

Margolin further teaches the enzymes to be lipase, esterase, or protease (see col. 8, ln. 28-34). The crosslinking agent is a combination of glutaraldehyde and a diaminoalkane (diaminooctane) (see col. 25, ln. 67, bridging col. 26, ln. 3), that can be used to crosslink a protein molecule to another protein molecule (see col. 5, ln. 35-37).

Margolin further teaches the enzyme crystals being combined with solid carrier materials (see col. 11, ln. 5-6, 25-26; col. 12, ln. 16-17). Although Margolin is silent with respect to the enzyme crystals being crosslinked with the carrier and that the aldehyde groups in the crosslinker spaced further apart than the aldehyde groups in glutaraldehyde, since the reference teaches the same enzyme crystals with the same crosslinking agent to the presently claimed invention, the reference's enzyme crystals would inherently be crosslinked to the carrier and the spacing of the aldehyde groups in the crosslinker and in glutaraldehyde would inherently be the same as that in the presently claimed invention.

Margolin differs from the presently claimed invention in that the reference does not teach the crosslinking agent is prepared by combining a second compound and a first compound in a specific molar ratio.

However, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, that the ratio of the two compounds would have been determined by routine experimentation in order to obtain the properties desired of the product.

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***Response to Arguments***

8. Applicant's arguments with respect to the rejection of claims 39-44 have been considered but are moot in view of the new ground(s) of rejection.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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November 28, 2005



**THAO T. TRAN  
PATENT EXAMINER**